

We Claim:

1. A pressure testing kit for testing the pressure in a pipe line, comprising:
 - a main fitting having at least one end adapted to connect to an end of a pipe and align a fluid passage of the pipe with a fluid passage extending through the main fitting during use of the kit, the main fitting having formed therein a port opening on an exterior side of the fitting and aligned with a recess extending around at least a portion of an internal circumference of the fluid passage in the main fitting;
 - a first test slide sized and configured to be removably inserted through the port and into the recess to block the flow of fluid through the main fitting, the test slide having a recess therein extending over a portion of the test slide that is positioned within the fluid passage to block the flow when the test slide is inserted into the fitting, the test slide having a first hole through the slide located to be placed in the fluid flow path of the fitting when the test slide is inserted into the fitting;
 - a second pressure release slide sized and configured to be removably received within the recess in the test slide, the pressure release slide having a second hole therein located and positioned so it can overlap with at least a portion of the first hole in the test slide in a first, open position and so it can not overlap with the hole in the test slide in a second, closed position with seals being interposed between the test slide and the pressure release slide and located to prevent passage of fluid through both the test slide and pressure release slide when the pressure release slide is in the second position; and
 - a third finish slide sized and configured to be inserted into the port and recess to seal the port.
2. The pressure testing kit of Claim 1, wherein the pressure release slide has a first and second seal interposed between the test slide and the pressure release slide, the first seal surrounding the second hole and the second seal surrounding the first seal.
3. The pressure testing kit of Claim 2, wherein the second seal has an elongated shape that allows the first and second slides to move relative to each other while maintaining a sealed area between the first and second slides within the second seal.
4. The pressure testing kit of Claim 1, further comprising at least one releasable locking mechanism interposed between the first and second slides to releasably restrict relative motion of the first and second slides.
5. The pressure testing kit of Claim 1, wherein the finish slide has an opening

corresponding in size and shape to the fluid passage through the main fitting to allow flow through the finish slide while providing a smooth flow surface across the finish slide and immediately adjacent portions of the main fitting.

6. The pressure testing kit of Claim 1, wherein the main fitting has a boss extending toward a longitudinal centerline of the fitting, with the recess being formed in the boss.

7. A pressure testing assembly for testing the pressure in a pipe line, comprising:

- a fitting having at least one end adapted to connect to an end of a pipe, the fitting having a fluid passage extending through the fitting, the fitting having formed therein a first port opening on an exterior side of the fitting and aligned with a first recess extending around at least a portion of a circumference of the fluid passage in the fitting; and

- a first test slide sized and configured to be removably inserted through the first port and into the first recess to block the flow of fluid through the main fitting during use of the fitting, the first slide having formed therein a second recess, the first slide having a first hole therethrough which is located in the fluid passage and in fluid communication with the recess to allow fluid to flow through the test slide; and

- a second pressure release slide sized and configured to move within the recess between a first position blocking the flow of fluid through the first hole, and a second position allowing fluid to flow through the test slide, the second slide having fluid seals interposed between the second slide and the recess to block the fluid flow in the first position and allow the fluid flow through the test slide in the second position.

8. The pressure testing assembly of Claim 7, wherein the fluid seals are face seals.

9. The pressure testing assembly of Claim 7, wherein the fluid seals are axial seals.

10. The pressure testing assembly of Claim 7, wherein the second slide has a cylindrical shape and the seals are axial seals.

11. The pressure testing assembly of Claim 7, wherein the first slide has a second port opening on an exterior side of the fitting and aligned with the recess and the second slide is removably inserted through the second port and into the second recess.

12. The pressure testing assembly of Claim 7, wherein the second slide has a rectangular cross-sectional shape and the fluid seals are face seals.

13. The pressure testing assembly of Claim 7, wherein the second slide has a second hole therein with the first and second holes overlapping to allow fluid flow through the test slide in the open position, the second slide having a second position in which the first

and second holes do not overlap and the seals block fluid flow through the test slide.

14. The pressure testing assembly of Claim 13, wherein the fluid seals comprise a first seal interposed between the first and second slides and surrounding the second hole to provide a fluid seal between the first and second slides around the second hole.

15. The pressure testing assembly of Claim 13, wherein the fluid seals comprise a first seal interposed between the first and second slides on opposing sides of the second slide and surrounding the second hole to provide a fluid seal between the first and second slides around the second hole.

16. The pressure testing assembly of Claim 15, wherein the fluid seals further comprise a second seal interposed between the first and second slides and surrounding the first seal.

17. The pressure testing assembly of Claim 16, further wherein the fluid seals further comprise a second seal interposed between the first and second slides on opposing sides of the second slide and surrounding the first seal.

18. The pressure testing assembly of Claim 17, wherein the second seal has two sides that are substantially parallel.

19. The pressure testing assembly of Claim 13, wherein the first and second holes are substantially the same size.

20. The pressure testing assembly of Claim 13, wherein the first and second holes are aligned in the open position.

21. The pressure testing assembly of Claim 7, further comprising at least one releasable locking mechanism interposed between the first and second slides to releasably restrict relative motion of the first and second slides.

22. A pressure testing assembly for testing the pressure in a pipe line, comprising:
a pipe fitting having walls defining a fluid passage extending through the fitting, the walls having an internal periphery;
first means for sealing the internal periphery and blocking fluid flow through the fluid passage during use of the fitting;
second means for allowing fluid flow through the first means when in an open position and for blocking fluid flow through the first means in a closed position.

23. The pressure testing assembly of Claim 22, wherein the walls defining the fluid passage are formed in part by a non-metallic insert placed into an externally accessible recess in the pipe fitting and the first means cooperates with the insert to block flow through the fluid passage.

24. The pressure testing assembly of Claim 22, wherein the second means comprises a slide having a hole through which fluid flows when in the open position, the slide moving within a recess in the first means.
25. The pressure testing assembly of Claim 22, further comprising means for locking the second means in an open position relative to the first means.
26. The pressure testing assembly of Claim 22, further comprising means for locking the second means in a closed position relative to the first means.
27. The pressure testing assembly of Claim 22, wherein the fitting further comprises an externally accessible fill port in fluid communication with the fluid passage through the fitting.
28. An removable slide for blocking fluid flow through a fitting, the fitting having walls defining a fluid passage having an inner periphery; the fitting having a first port opening onto an external surface of the fitting, the removable slide comprising:
 - a first slide sized and configured relative to the fitting to be removably inserted through the first port and into the fitting to form a fluid-tight seal with the inner periphery during use of the slide, the first slide having a first hole therein allowing fluid flow through the first slide, the first slide having an internal recess therein through which the first hole extends;
 - a second slide slidable movable within the recess in the first slide and having a size sufficient to block the first hole, the second slide having a second hole therethrough and the recess being sufficiently sized to allow the second slide to move within the recess between an open position with the first and second holes overlapping and a closed position with the first hole blocked by the second slide; and
 - a fluid seal interposed between the first and second slides to prevent fluid passage through the second hole and recess when the second slide is in the closed position.
29. The removable slide of Claim 29, wherein the fluid seal comprises a first compressible sealing surface surrounding the first and second holes when the second slide is in the open and closed position.
30. The removable slide of Claim 29, wherein the fluid seal further comprises a second compressible sealing surface surrounding the second hole and located inside first sealing surface.
31. The removable slide of Claim 30, wherein the first fluid seal has two generally parallel sides and wherein the recess is sized and configured to allow the first and second

holes to align.

32. The removable slide of Claim 29, wherein the first recess is accessible externally of the first slide and the fitting when the first slide is inserted into the fitting during use of the first slide.

33. A method for pressure testing a pipe line having a fitting in fluid communication with the line, the fitting having an externally accessible port, comprising:

- placing a first slide into the fitting through the port to block fluid flow through the fitting and out the port, the first test slide having an internal recess with a first hole extending through the test slide and recess to allow fluid flow through the first test slide;

- placing a second slide in the internal recess in a closed position to block fluid flow through the first slide and providing a fluid seal between the first and second slides to prevent fluid flow through the first slide;

- filling the line with fluid and pressure testing the line; and

- releasing the test pressure by moving the second slide to unblock the fluid flow through the first slide.

34. The method of Claim 33, wherein the second slide blocks flow through the first hole.

35. The method of Claim 33, wherein the second slide has a second hole that is aligned with the first hole to allow fluid to flow through the first slide, and comprising the further step of providing a fluid seal surrounding the aligned first and second holes.

36. The method of Claim 33, wherein the filling step further comprises connecting a fluid source to an externally accessible port on the fitting that is in fluid communication with the portion of the line to be tested.

37. The method of Claim 33, wherein the externally accessible port is formed by placing a non-metallic insert into a metallic fitting to provide a fluid tight seal between the fitting and the insert, the insert having a recess therein that cooperates with the first slide to provide a fluid tight seal between the insert and the first slide.

38. The method of Claim 33, further comprising:

- removing the first and second slides; and

- sealing the port by inserting a finish slide into the port.

39. The method of Claim 38, wherein the fitting has walls defining a recess that cooperates with the first slide to block fluid flow through the fitting, and wherein the finish slide has walls cooperating with that recess to provide a substantially smooth fluid flow path through the fitting at the location of the walls of the finish slide.

40. A method for use in pressure testing a pipe line, comprising:
- connecting at least one end of a pipe fitting having a fluid passage there through to a pipe line to define a fluid flow path along a longitudinal axis, the fitting having an externally accessible port;
 - inserting a first slide having opposing faces through the port into the fitting to engage a sealing surface on at least one face of the slide with a surface in the fluid passage, the slide being sized and configured and the sealing surfaces being located to block the fluid passage sufficiently to allow pressure testing of the pipe line, the first slide having an internal recess therein and having a first hole extending through the slide and internal recess with a second slide located within the internal and having seals cooperating with the first slide to block fluid flow through the first hole and first slide;
 - pressure testing the pipe line;
 - moving the second slide within the recess so that a second hole in the second slide overlaps with at least a portion of the first hole to allow fluid to flow between the first and second holes to relieve the test pressure in the line;
 - removing the first slide; and
 - inserting a third slide through the port into the fitting and sealing the port with the third slide, the third slide configured so it does not block flow through the fluid passage of the fitting.
41. The method of Claim 40, wherein the fitting has a recess extending about at least a portion of a circumference of the flow path, and wherein the first slide extends into the recess around the entire circumference to block the flow path.
42. The method of Claim 41, wherein the third slide has an opening therein defined by walls, the opening being sized and located to cooperate with the recess in the fitting to block that recess and form a portion of the fluid passage when the third slide seals the port.
43. The method of Claim 41, further comprising permanently fastening the third slide to the port to prevent fluid passage through the port.
44. The method of Claim 43, wherein the permanent sealing comprises placing adhesive on the third slide and adhering the port and at least a portion of the recess to the third slide.
45. The method of Claim 43, wherein the fitting is adhered to the pipe line using an adhesive, and wherein the first slide is made of a material different from the fitting and selected so the adhesive does not adhere to the first slide.

46. The method of Claim 43, wherein the third slide is made of a material selected to be adhered to the fitting.
47. The method of Claim 41, further comprising providing a fluid passage extending from outside to the inside of the fitting, the fluid passage having a first end accessible externally of the fitting and having a second end in fluid communication with the fluid passage of the fitting so that fluid can be introduced from an external source into the fluid passage inside the fitting.
48. The method of Claim 47 wherein the fluid passage extends through a wall of the fitting.
49. The method of Claim 41, further comprising providing the fitting with an internal boss around at least a portion of a circumference of the fluid passage so the boss extends radially inward toward the longitudinal axis and forming a recess in the boss, and further connecting the fitting to the pipe line by providing opposing ends of the fitting with female ends and inserting mating male ends of the pipeline into the female ends so the male ends abut the boss, the boss and male ends providing a substantially uniform diameter to the fluid passage through the fitting.
50. The method of Claim 41, further comprising placing an insert into the pipe fitting, the insert defining the port through which the first and third slides are inserted, the insert further defining the recess extending about at least a portion of a circumference of the flow path.
51. A method for use in pressure testing a pipe line, comprising:
 inserting the first test slide of Claim 7 into a port of a test fitting to block the fluid flow through the test fitting; and
 pressure testing the pipe line;
 releasing the pressure used for testing by moving the second slide to allow fluid flow through the test slide; and
 removing the test slide from the port and inserting the third finish slide of Claim 1 into the port and sealing the port to prevent fluid passage out of the port.
52. A method of Claim 51, wherein the second slide has a hole therein that is aligned with the first hole to release the pressure, and wherein the second hole is surrounded by a first face seal.
53. A method of Claim 52, wherein the first face seal is surrounded by a second face seal.